

ON SOME AUSTRALIAN ANISOPTERA, WITH
DESCRIPTIONS OF NEW SPECIES.

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(Plate lxii.)

The following species are dealt with in this paper:—

Synthemis spiniger, n.sp.

Metathemis brevistyla subjuncta, n.subsp.

Metathemis guttata aurolineata, n.subsp.

Austrogomphus doddi Tillyard.

Austrogomphus manifestus Tillyard.

Austrogomphus armiger, n.sp.

Austroeschna parvistigma Selys.

Austroeschna multipunctata Martin.

Austroeschna forcipata Tillyard.

Petalura pulcherrima, n.sp.

Subfamily CORDULIINÆ.

1. SYNTHEMIS SPINIGER, n.sp.

♂(unique). *Total length* 53, *abdomen* 40, *forewing* 32·5, *hindwing* 31·5 mm.

Wings: *neuration* black, bases of wings touched with deep black bordered by saffron; *a distinct round creamy spot at extreme base of costa on all four wings*. *Pterostigma* 2·7 mm.; black. One basilar, four submedian, and one hypertrigonal crossveins; *triangles* free normally (right hindwing triangle once crossed); *post-trigonals* of forewing, one double followed by 6-7 single rows. *Nodal Indicator* $\left\{ \begin{array}{l} 13, \quad 7-8 \\ 9-11, \quad 9-11 \end{array} \right\}$ *Head*: *vertex* black, hairy; *front* hairy, deeply and $\left\{ \begin{array}{l} 13, \quad 7-8 \\ 9-11, \quad 9-11 \end{array} \right\}$ widely cleft in middle, black at base and in cleft, with sides and lower parts glaucous dirty yellowish-grey; *clypeus* and upper part of *labrum* dirty greyish-brown; rest of *labrum* dull ochreous; *labium* ochreous. *Thorax*: *prothorax* black. *Meso- and metathorax* black above, shading to dark brown on shoulders; a fine yellow line along dorsal ridge, and a pair of round yellow humeral spots close up

to prothorax; sides with a straight ochreous band bordered above by steely black; a small round yellowish spot and an elongate yellowish patch very low down; *notum* black, scutella yellow. *Legs* black. A b d o m e n very slender, 1-2 swollen, 3 very slender, then widening from 4 to 6, 6 to 8 tapering, 9-10 narrow. Colour black, with yellowish spots as follows:—2, a pair of very small round central spots; *auricles* yellowish-brown: 3, a pair of triangular basal spots, and two small central spots touching dorsally: 4, a pair of very small basal spots, and a pair of central spots touching dorsally, larger than in 3: 5, a trace of basal spots, a pair of round dorsal spots two-fifths from base, larger than in 4; 6-8, a pair of round dorsal spots near centre, decreasing in size from 6 to 8; all central spots crossed by the fine transverse black line of the supplementary carinæ: 9-10 black, 10 swollen basally into a rounded dorsal tubercle. A p p e n d a g e s: *superior* 3.8 mm., black, slender, first three-fourths straight, converging, last quarter turned slightly inwards; tips rather blunt. *Inferior* 2 mm., semitransparent brown edged with black; narrow sub-triangular, upcurved. The superior carry a large inferior spine at bases (Plate lxii., figs. 15, 16).

Hab.—Waroona, W.A., taken by Mr. G. F. Berthoud; January 27th, 1912.

Type: ♂, Coll. Tillyard.

This is the most interesting *Synthemid* yet discovered, for it combines in itself characteristics of the two genera *Synthemis* and *Metathemis*, and probably represents, fairly closely, what the immediate ancestors of our East-Australian *Metathemis* were like, before they evolved to their present condition. The known species of *Metathemis* are very closely allied, and, at a not very remote period, were probably represented by only one form, which may have been the same in Eastern and Western Australia. After the great desert barrier arose, the Western form seems to have barely held its own, and is now only represented by this single rare species; while, on the other hand, the Eastern form spread far and wide, and altered considerably in the process. Though *Synthemis spiniger* is generically a true *Synthemis*, possessing the peculiar shape of the abdomen and the long appendages of that

genus, yet it is remarkable in possessing the two characters that are most prominently developed in *Metathemis*, viz., the four bright basal wing-spots, and the basal spine of the superior appendages. It is clearly very closely allied to *S. leachi* Selys, which was taken in company with it by Mr. Berthoud; but it can be at once distinguished from this latter species by its smaller size, by possessing only two dorsal thoracic spots instead of four, by the more slender and less spotted abdomen, and by the straighter appendages and the prominent basal spine. In general appearance, it resembles *Metathemis nigra* Tillyard, closely, but this latter species has short appendages and no dorsal thoracic spots. It would be of great interest to find the female of this species, to see to what stage of development the ovipositor has reached.

2. METATHEMIS BREVISTYLA SUBJUNCTA, n. subsp.

Total length, ♂ ♀ 41; *abdomen* ♂ ♀ 30; *forewing* ♂ 28·5, ♀ 31; *hindwing* ♂ 27·5, ♀ 30·5 mm.

It differs from the type as follows:—(1) Smaller, more compact build. (2) Much shorter *pterostigma*, ♂ 2, ♀ 2·5 mm., covering just two cellules. (3) Smaller spots on abdomen. (4) The two spots forming the upper lateral band of the thorax are *just joined*, instead of being quite separate (Plate lxii., compare fig. 1a type-form, fig. 1b, *M. subjuncta*). This difference is very distinctive and quite constant. (5) Wings of both sexes quite transparent, instead of being tinged with brown as in the type-form, especially the female. (6) Ground colour almost black, much darker than in type-form.

Hab.—Dorrigo and Ebor, N.S.W. December, 1911, and January, 1912.

Types: ♂ ♀, Coll. Tillyard.

This subspecies is very distinct from the type while on the wing, as it flies more swiftly and keeps very close to the surface of the water. The type-form has a slow soaring flight, and prefers to fly high up round bushes and trees. The two forms could be easily named while flying, but in spite of their very distinctive difference of appearance, they cannot be claimed as distinct species.

3. *METATHEMIS GUTTATA AUROLINEATA*, n. subsp.

Total length, ♂ 43, ♀ 44.5; *abdomen* ♂ 32.5, ♀ 33; *forewing* ♂ 30, ♀ 33; *hindwing* ♂ 30, ♀ 33.

It differs from the type as follows:—(1) Shorter *pterostigma*, ♂ 2, ♀ 2.5 mm., that of ♂ covering $1\frac{1}{2}$ -2 cellules only. (2) Frontal yellow spots comparatively close, 0.5 mm. apart in ♂ and 1 mm. in ♀. (3) Colouration black or very dark brown with gold or yellow markings; the colouration of the type-form is brown with creamy markings. (4) A pair of distinct antehumeral lines or rays on thorax, gold or yellow, from 1.5 to 2.5 mm. in length. These are not present in the type-form.

Hab.—Dorrigo and Ebor, N.S.W. December, 1911, and January, 1912.

Types: ♂♀, Coll. Tillyard.

Very distinct from the type-form, but, in my opinion, not above subspecific rank. Some of the females which I took at Ebor, approach the type-form in size and colouration. It is of interest to note that, on the Dorrigo Plateau, two of the species of *Metathemis* are replaced by new subspecific forms, while the third species, *M. virgula* Selys, is exactly like the type-form. *Synthemis eustalacta* Burm., and *S. macrostigma orientalis* Tillyard, also occur on this plateau, and are of typical form.

Subfamily G O M P H I N Æ.

4. *AUSTROGOMPHUS DODDI* Tillyard.

A single male taken by Mr. F. P. Dodd at Kuranda, N.Q., November, 1906, was described by me in these Proceedings (xxxiv., p.249), and the male appendages figured. At Pallal, N.S.W., in December, 1910, I found this species quite common along the Horton River. The males resemble the type very closely, but are somewhat more brightly coloured, and of slightly stouter build.

♀. *Total length* 45, *abdomen* 32, *forewing* 28, *hindwing* 27 mm.

Wings very slightly touched with brown in mature specimens; *pterostigma* 3.7 mm., black with yellowish centre. *Nodal Indicator* [14-15, 8-10] Colouration of head and thorax as in male; *occiput* [9-11, 9-10] yellow carrying two dark brown spurs, flat sub-

triangular, downy, placed close up to eyes (Plate lxii., fig. 2). Abdomen fairly stout, cylindrical, 1-2 enlarged, 7-9 slightly enlarged. *Colour*: 1, yellow; 2, very dark brown with a thick yellow sub-oval dorsal mark, and two large lateral yellow spots; 3-6, black, with two large semioval basal yellow spots; 7, basal half yellow, with irregular black lines, apical half black; 8, black, with two large yellow spots; 9, black, with two small yellow spots; 10, black. *Appendages* 0.7 mm., slightly pointed, yellow. *Vulvar scale* with two pointed short branches.

Hab.—Kuranda, N.Q., and Pallal, North-western New South Wales. November to December.

Types: ♂♀, Coll. Tillyard.

5. AUSTROGOMPHUS MANIFESTUS Tillyard.

A unique female of this rare species was described by me (*loc. cit.*, p. 248) in 1909, from Kamerunga, N.Q. At Pallal, N.S.W., I took four males and three females, two in the act of emergence.

♂. *Total length* 49, *abdomen* 37, *forewing* 26, *hindwing* 25 mm.

Wings: *ptero stigma* black, 2.8 mm. *Nodal Indicator* || 12 7-8 |
Head and thorax as in female. *Abdomen* long and || 8 8 |
 slender, 1-2 much enlarged, 3-6 and part of 7 very slender, rest of 7 and whole of 8 much swollen, 9 long and tapering, 10 tapering. *Breadth*: across 1, 3 mm.; across 3-6, 1 mm.; across 8, 2.5 mm.; across end of 10, 1.5 mm.; *length* of 9, 2.7 mm.; of 10, 1.6 mm. *Colour* black marked with yellow as follows: 1, a broad dorsal mark, and sides yellow; 2, a rather irregular dorsal mark, sides and auricles yellow; 3-6, a basal band and a suspicion of a dorsal line along 2 and part of 3; 7, basal two-fifths yellow; 8, a pair of medium basal lateral spots and a pair of small apical lateral spots; 9-10, black with yellow lines in sutures; sides of 8 and 9 enlarged downwards into leaf-like folds or sheaths, larger in 8 than in 9. *Appendages*: *superior* 1 mm., yellow, sharply pointed and much upturned, carrying an elongate, downcurved, black tubercle beneath. *Inferior* 0.6 mm., black, upcurved, bifurcated, downy, tips rounded (Plate lxii., figs. 3, 4).

♀. A correction is necessary in the description already published. The *occiput* is black, hairy, with a large central yellow

patch, from the border of which project *two finely pointed yellow spikes* (Plate lxii., fig.5).

Hab.—Pallal, N.S.W.; Kamerunga and Mackay, N.Q. December.

Types: ♂♀, Coll. Tillyard.

Now that the male is known, I am able to place this species as being most closely allied to *A. arenarius* Tillyard, from N. Queensland. It resembles this species in the elongation of segments 9 and 10 of abdomen, in the lateral sheaths of 8 and 9, in the slender abdomen strongly swollen at 8, and in the peculiar form of the appendages. It differs from it, however, very completely in the whole colour-scheme.

6. AUSTROGOMPHUS ARMIGER, n.sp.

♂. *Total length* 41-43, *abdomen* 30-32, *forewing* 24-26, *hindwing* 22-24 mm.

Wings: *neuration* black, fine; *pterostigma* 3.5 mm., reddish-brown between the nervures. *Triangle* of hindwing very much wider than that of forewing. *Hindwing* strongly angulated, anal triangle 3-celled. *Nodal Indicator* [9, 6-7]. *Head*: *eyes* black, bordered beneath with yellow; [8, 7-8] *occiput* yellow; *vertex* black with a large round yellow spot close up to occiput; *front*, *clypeus*, and *labrum* bright yellow; *labium* yellow, paler on sides. *Thorax*: *prothorax* nearly 4 mm. wide, hairy, black, with two geminate yellow dorsal points, and a large oval yellow spot on each side. *Meso-* and *metathorax* black, marked with yellow as follows:—a fine collar in front, interrupted dorsally; a suspicion of a line on the dorsal ridge; two large antehumeral stripes or patches, subrectangular and slightly excavated on outer margin; sides completely yellow; *scuta* and *scutella* yellow. *Legs* black, basal parts of femora yellow. [*Note.*—In the specimens received by me, the markings of head, thorax, and abdomen are coloured a peculiar pinkish-brown. This colour is obtained by killing any species of *Austrogomphus* in excess of chloroform or ammonia, or even in a *damp* cyanide bottle; hence I do not hesitate to describe the markings as *yellow*. Possibly the ptero-

stigma is also yellow. Specimens of *A. collaris* received at the same time are coloured pinkish-brown; this species is marked with yellow when alive.] *Abdomen*: 1-2 swollen, 3-7 slender, 8-10 slightly enlarged. *Colour* black, marked with yellow as follows:—1, downy, a dorsal patch and large lateral spots; 2, downy, a dorsal mark shaped like a Roman torch; sides yellow, *auricles* small, yellow touched with black; 3, two large basal blotches nearly meeting dorsally; two lateral spots towards apex; 4-7, two large basal spots nearly meeting dorsally; 8-9, two small basal spots; 10, black, *carrying, at extreme outer apical edge, a pair of small black projecting spurs about 0.5 mm. long*; in profile, the spur is rather broad and rounded, and hollowed out on the outer surface (Plate lxii., figs.6, 7a). *Appendages*: *superior* 1.5 mm., yellow, subforcipate, meeting at tips, which are slender and pointed inwards; with a fine yellow spur projecting outwards near base, parallel to, but not quite as long as the spur on 10. *Inferior* 0.5 mm., broad, bifurcated, upcurved, yellow (Plate lxii., figs.6, 7, s, i, b).

♀. *Total length* 39-42, *abdomen* 28-30, *forewing* 27-28, *hindwing* 25-26 mm.

Pterostigma 4 mm. *Occiput* with a projecting yellow ridge carrying long hairs, but without tubercles (Plate lxii., fig.8). Similar to male, but with thicker cylindrical abdomen carrying pairs of large oval spots both basal and central on 3-7; 8-9 with large spots low down on sides; 10, yellow on sides. *Vulvar scale* with two exceedingly short pointed slender contiguous branches. *Appendages* 0.5 mm., black, pointed.

Hab.—Waroona, W.A. Taken by Mr. G. F. Berthoud; November, 1910 and 1911; three males and nine females.

Types: ♂♀, Coll. Tillyard.

This very rare insect differs so much from the other members of the genus, that it will probably form the type of a new genus. The remarkable development of parallel spurs on segment 10 and the superior appendages seems to be a contrivance to enable the male to clasp the occipital ridge of the female, which, in this species, is not furnished with the usual tubercular processes by which this object is accomplished.

Subfamily *ÆSCHNINÆ*.

- { 7. *AUSTROÆSCHNA PARVISTIGMA* Selys.
 { 8. *AUSTROÆSCHNA MULTIPUNCTATA* Martin.

These two forms have, so far, been regarded as distinct races or varieties of one species, each inhabiting its own geographical region. The type-form, *A. parvistigma* Selys, occurs commonly on mountain-streams throughout Tasmania, and on the Mount Lofty Ranges, near Adelaide. In Victoria, it is replaced by *A. multipunctata* Martin, which extends through Gippsland to the Kosciusko district of New South Wales, and right up to the Blue Mountains, descending to the coastal hills around Sydney. Further north, at Dorrigo, I found *A. multipunctata* last year as early as October. Later on, in December, at an elevation of 4,000 to 5,000 feet, at Ebor (Guy Fawkes), N.S.W., I found both forms flying together, and was enabled to study them on the spot. As a result, I have now no doubt as to the specific distinctness of the two forms, which can be separated even in the larval stage. In the imagines, besides the differences noted by Martin in the size of the pterostigma and form of appendages, there is a well-marked and constant difference, both of colouration and colour-pattern on head, thorax and abdomen. So distinct are they, that I was able to distinguish both sexes on the wing. The following are the chief differences:—

A. parvistigma Selys.

A. multipunctata Martin.

Pterostigma 2·2·3 mm; *membranule* 2 mm., triangular, grey.

Pterostigma 2·7·3 mm.; *membranule* slightly shorter and wider, outer edge convex.

Colouration very dark brown or black, with creamy markings in the mature insect.

Colouration rich dark brown, with pale blue-grey markings in the mature insect (creamy only in immature females and very immature males).

Head: a thin whitish band along *front* bordering the clypeus, and separated from it by a dark line in the suture.

Head: *front* continuously dark brown right down to clypeus.

Thorax: dorsal bands scarcely more than mere lines, short, curved, whitish, each followed by three spots behind, one each side of interalar ridge, close up to dorsal ridge; and one, larger and more rounded, above interalar ridge and lying further away from dorsal ridge. Humero-lateral band consisting of three separate creamy-white spots, the first two waved, the third round; lower lateral surface with four creamy spots.

♂. *Abdomen* very much spotted—1, a large spot low down on each side: 2, two basal spots, two central transverse lines, two apical spots, a large spot on each auricle, a large creamy band on each side of genitalia: 3-4, two basal, two central, and two apical spots: 5, ditto, central spots placed one-third from base, apical spots very small: 4-7, a conspicuous comma-shaped spot low down on each side: 6-7, apical spots absent or obsolescent, central spots close up to basal spots, isolating a black cross-mark: 8, basal and central spots conjoined with two large basal spots; a suspicion of two lateral apical spots; two small basal lateral spots: 9-10, two lateral apical spots: 10 only slightly raised dorsally into an obtuse tubercle.

Thorax: dorsal bands more conspicuous, longer, waved, pale bluish-green, each followed by a single spot just above interalar ridge; humero-lateral band with the first two waved spots enlarged to form curved bands of pale bluish-green; third spot as in *A. parvistigma* but bluish-green; lower lateral surface with four creamy spots touched with blue or green.

♂. *Abdomen* much less spotted (the name *multipunctata* is unfortunate, from this point of view)—1, as in *A. parvistigma*: 2, a cross formed of four separate bluish dorsal lines; on each side, a curved apical spot; a creamy spot on auricles, and large band bordering genitalia: 3, more pointed than in *A. parvistigma*; basal, central, and apical spots bluish, much smaller than in *A. parvistigma*: 4-5, a pair of central bluish spots very close together; on each side a lateral apical spot: 4-7, with comma spot as in *A. parvistigma*: 6-7, a pair of small slanting spots close together one-third from base: 8, two large bluish basal spots: 9-10, with lateral apical spots: 10, raised dorsally into a large, sharply-pointed tubercle.

♀. *Abdomen*: basal spots very large on 3-7, central spots flat and narrow, apical spots very small or absent; 8, with two basal dorsal spots, and two large apical lateral spots; 9, with large, apical, lateral spots.

♂. *Appendages*: superior 4 mm., inferior 1.4 mm.

♀. *Abdomen*: basal spots absent except in 3; central spots fairly large, brownish, crossed by black line of carina in 3-4; 8, with small, basal spots; 8-9, with medium, brown, lateral, apical spots.

♂. *Appendages*: superior 3.7 mm., inferior 1.2 mm.; tips of superior thicker and more rounded; tip of inferior more truncate than in *A. parvistigma*.

For comparison of colour-pattern of segments 2-4 of abdomen of males, see Plate lxii., figs. 9, 10.

9. *AUSTROÆSCHNA FORCIPATA* Tillyard.

Planæschna(?) *forcipata* Tillyard, These Proceedings, 1906, xxxi., p. 726.

Austroæschna forcipata Tillyard, Martin, Coll. Zool. de Selys-Longchamps, Fasc. xix., Aeschnines, p. 102, No. 14, 1909.

Austroeschna severini Foerster, Ann. Soc. Ent. Belge, 52, p. 191, 1908; Martin, *loc. cit.*, p. 103, No. 15.

The male only of this species has been described. Foerster's *A. severini* is clearly synonymous, the appendages as figured by Martin being exactly like those of my type-male of *A. forcipata*. This figure is more correct in detail than the sketch sent by me to M. Martin and my own figure, but is sketched with the appendages slightly tipped down, making the inferior appear shorter. The colouration of Foerster's specimen shows it to be a faded immature male.

♀. *Total length* 65-71, *abdomen* 49-54, *forewing* 47-51, *hindwing* 46-50 mm.

Wings slightly clouded all over with brown. *Pterostigma* 2.5-3 mm., black. *Membranule* nearly 2 mm., brown. *Nodal Indicator* [20-22, 15-16]. *Head* and *thorax* as in male. *Abdomen* [14-16, 15-18] stouter, thicker, and more cylindrical than in ♂: 1-2, swollen; 3-7, narrower; 8-10, slightly swollen.

Colour dark chocolate-brown to black, marked as follows with green—1, green with two basal brown spots; 2, a fine dorsal cross made of four separate parts, of which the basal upright is sub-triangular, the rest being lines; an apical transverse band; sides largely green; 3-6, black, with a pair of large apical spots nearly meeting dorsally; 7, similar but with smaller spots; 8-10 black. *Appendages* 1 mm., pointed, black. *Ovipositor* ending in a semi-circular cutting edge armed with about fourteen serrated spines, and projecting slightly beyond end of abdomen.

Hab.—Kuranda, Cairns, Cooktown, Herberton, and Atherton, N.Q. December to January.

Types: ♂♀, Coll. Tillyard (♂, Kuranda, January, 1905, taken by myself; ♀, Kuranda, January, 1908, taken by Mr. F. P. Dodd).

The series of six males and three females in my collection, shows considerable variation in size.

Subfamily PETALURINÆ.

10. PETALURA PULCHERRIMA, n.sp.

♂. *Total length* 104, *abdomen* 77, *forewing* 58, *hindwing* 57, *expanse of wings* 122 mm.

Wings: *neuration* black, strong; *pterstigma* narrow, black, forewing 11, hindwing 12 mm. *Head*: *eyes* nearly black, 2 mm. apart across occiput; *ocelli* conspicuous; *antennæ* 4 mm., slender, black; *vertex* and base of *front* black; *front* yellow, with a large flat triangular black patch next clypeus; *postclypeus* very dark brown, with a yellow patch on each side; *anteclypeus* very dark brown; *labrum* bright yellow, bordered with black along mouth; *genæ* yellow; *labium* yellowish (Plate lxii., fig. 13). *Thorax*: *prothorax* very narrow, hairy, black, with a conspicuous narrow yellow collar behind. *Meso-* and *metathorax* dark brown, with a pair of sub-triangular curved yellowish dorsal bands close up to dorsal ridge (Plate lxii., fig. 14); sides brown, with two broad parallel straight yellow bands. *Legs* black, large, strong; measurements of femur, tibia and tarsus: fore, 9, 9, 4·5; middle, 12, 9, 5; hind, 16, 11, 5·5 mm. respectively. *Abdomen* slender; breadth at 1-2,

5 mm.; at 5-6, 2 mm.; at 8-10, 3.5 mm. *Colour* black and yellow, as follows: 1, blackish, hairy, a faint yellowish dorsal line, and a patch of yellow on sides; 2, black with a fine dorsal line, a fine transverse basal line, a slightly wider transverse apical band, and most of sides, yellow; *auricles* flat, inconspicuous, yellow; 3-4, black, broader basal and apical bands of yellow, joined by a broad sublateral band crossed by the black line of the carinæ: conspicuous black bands along all sutures; 5-7, black, with irregular yellow basal and apical bands of yellow diminishing in width from 5 to 7; 8, black with a fine basal yellow line and a conspicuous apical yellow band; 9, basal three-fifths black, apical two-fifths irregularly yellow; 10, black, a touch of yellow basally and on the curved apical borders (Plate lxii., fig. 11). *Appendages*: *superior* 7 mm. long, by 5.5 mm. broad, black, leaf-like, shaped as in *P. ingentissima* Tillyard, but much smaller. *Inferior* black touched with brown, 2 mm. long, by 3 mm. wide, trapezoidal, curved, a slight projecting median point underneath; shape intermediate between that of *P. ingentissima* and *P. gigantea* (Plate lxii., fig. 12).

♀. Unique. *Total length* 95, *abdomen* 69, *forewing* 62, *hindwing* 61, *expanse* 130 mm.

Differs from male in its shorter and more cylindrical abdomen; breadth at 1-2, 5 mm.; at 3-4, 4.5 mm.; at 5-9, 4 mm.; 10, slightly narrower. Yellow markings all broader and more conspicuous. *Appendages* 1 mm., short, straight, black, tips rather blunt, with two stiff hairs projecting from each. *Ovipositor* reaching just to end of abdomen, upcurved, carrying two filaments, and, on the keel between and below them, a row of sharp bristles set close together.

Hab.—Cooktown, N.Q., six males taken by myself; January, 1908. Kuranda, N.Q., one female taken by Mr. F. P. Dodd; December, 1907.

Types: ♂♀, Coll. Tillyard.

This very beautiful insect is intermediate in size between *P. ingentissima* Tillyard, and *P. gigantea* Leach, but resembles the former in its slenderness of build. It may be easily distinguished from both by the conspicuous black and yellow colour-pattern,

recalling that of *Uropetala carooei* White (from New Zealand) in general effect; and also by the relatively small size of the superior appendages of the male, and by the intermediate form of the inferior appendage. The colouration of the frontal parts of the head is very distinct also, and is much more yellow than in *P. ingentissima*.

Note on Synonymy.—*Austroeschna aspersa* Martin, *loc. cit.*, p.96, No.7(1909), is synonymous with my *A. anacantha*, These Proceedings, 1907, xxxii., p 732. *Telephlebia Racleayi* (printer's error for *Macleayi*) Martin, *loc. cit.*, p.142(1909) is synonymous with *Austroeschna costalis* Tillyard, These Proceedings, xxxi., p.724. *Macromia viridescens* Tillyard (unique ♀) is the female of *M. terpsichore* Foerster.

EXPLANATION OF PLATE LXII.

Fig.1.—Upper lateral thoracic band, *a* in *Metathemis brevistyla brevistyla* Selys; *b* in *M. brevistyla subjuncta*, n.subsp.

Fig.2.—*Austrogomphus doddi* Tillyard, ♀, occiput.

Fig.3.—*Austrogomphus manifestus* Tillyard, ♂, appendages, dorsal view.

Fig.4.—*Austrogomphus manifestus* Tillyard, ♂, appendages, lateral view.

Fig.5.—*Austrogomphus manifestus* Tillyard, ♀, occiput.

Fig.6.—*Austrogomphus armiger*, n.sp., ♂, appendages, dorsal view, of right side.

Fig.7.—*Austrogomphus armiger*, n.sp., ♂, appendages, lateral view.

Fig.8.—*Austrogomphus armiger*, n.sp., ♀, occiput.

a, spur of segment 10; *b*, spur of superior appendage; *s*, superior appendage; *i*, inferior appendage.

Fig.9.—*Austroeschna parvistigma* Selys, ♂, colour-pattern of segments 2 to 4 of abdomen.

Fig.10.—*Austroeschna multipunctata* Martin, ♂, colour-pattern of segments 2 to 4 of abdomen.

Fig.11.—*Petalura pulcherrima*, n.sp., ♂, colour-pattern of abdomen (× 1.5).

Fig.12.—*Petalura pulcherrima*, n.sp., ♂, inferior appendage from below (× 1.5).

Fig.13.—*Petalura pulcherrima*, n.sp., ♂, colour-pattern of head from in front (× 1.5).

Fig.14.—*Petalura pulcherrima*, n.sp., ♂, colour-pattern of thorax from above (× 1.5).

Fig.15.—*Synthemis spiniger*, n.sp., ♂, appendages, dorsal view.

Fig.16.—*Synthemis spiniger*, n.sp., ♂, appendages, lateral view.